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X-ray Mirror Collaboration :

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With help from DND-CAT and SRI-CAT at the Argonne APS for X-ray measurements and MSFC for polishing mandrels

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An Update: lack of funding slows work, but : have still have made great progress

We have made X-ray mirrors via placing multilayers on a mandrel and the electroforming to remove the layers intact. (cf. Ulmer et al., 1999, SPIE, 3773, 113)

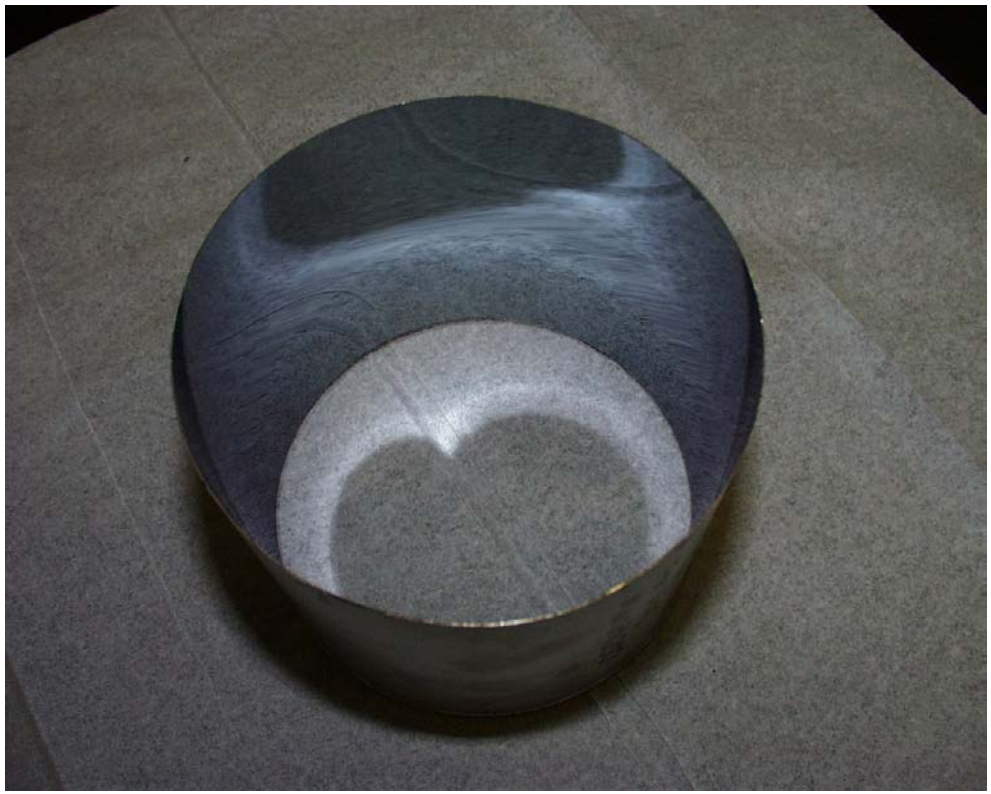
We use CNx to smooth the mandrels to the 0.2-0.3 nm level

In Figure 1 we show the results of measurements on a truncated cone, 10 cm in diameter and 10 cm long

In Figure 2 we show that we can also make Wolter I mirrors. We will make more measurements at higher angles on the truncated cone in June, and funding permitting, purchase a new smooth Wolter I mandrel to demonstrate to TRL6 for the HXT optics

Multilayer Coated Mirror

60 layers 5.2 nm W/Si



40 keV interference bump

Dashed line IMD model

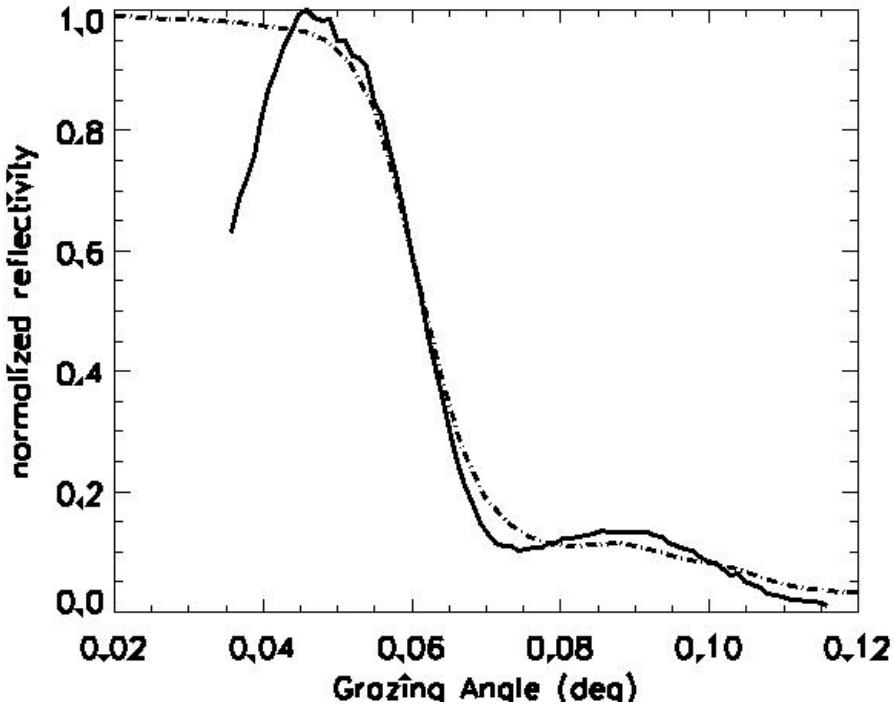
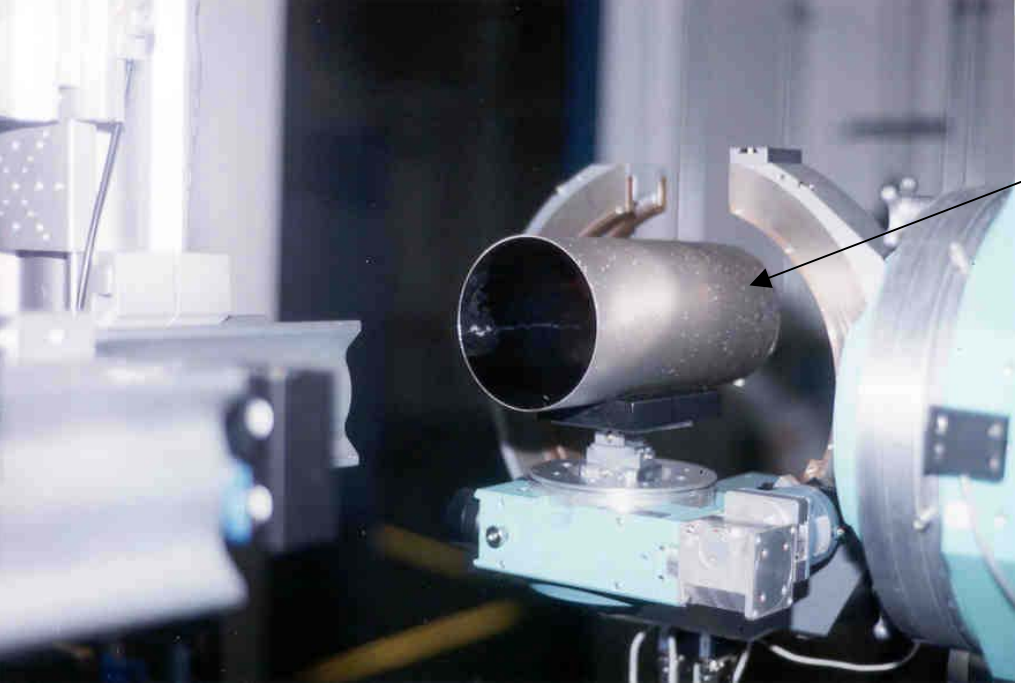


Figure 1



30 cm long, 12 cm dia.

2 m focal length Wolter I

With multilayers

First Light

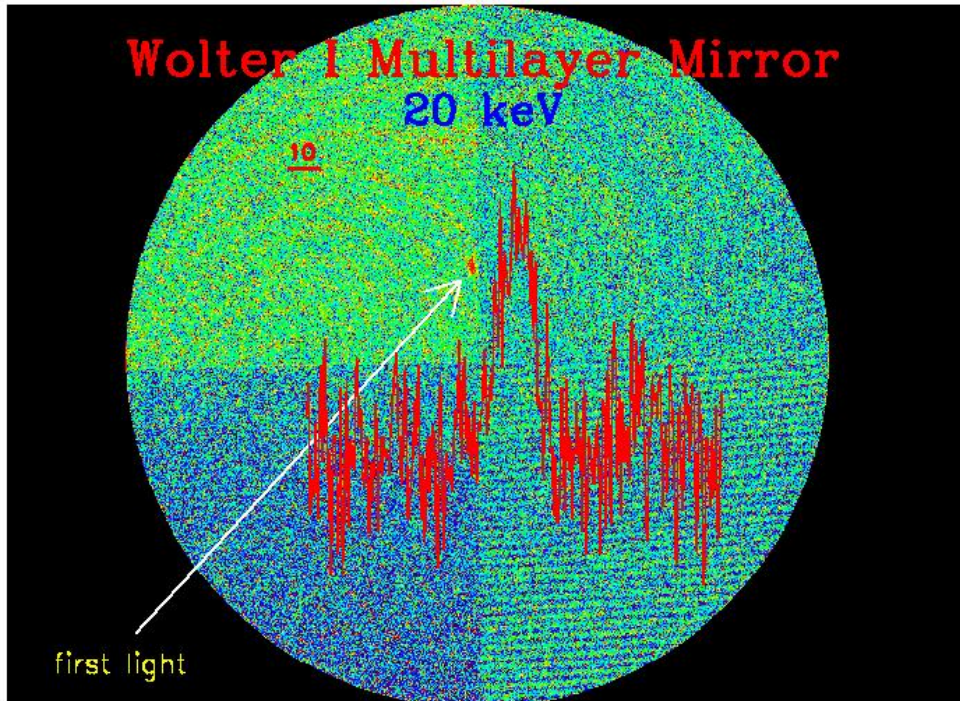


Figure 2